

the middle above. Thorax also somewhat carinate along the middle of the back, and surface of segments sculptured: mandibles without palpi. The species is named by Dr. Eights, *Glyptonotus antarcticus*. The paper is accompanied by two handsome plates, representing a dorsal and ventral view of this fine species, and giving a separate view of the antennæ.—*Trans. Albany Inst.*

*On the Coleopterous Insects of the genus Cebrio.*

By M. GUÉRIN-MÉNEVILLE.

The insect which forms the subject of these observations was described by Fabricius under the name of *Cistela gigas* in 1787; in 1790 it was made the type of the genus *Cebrio* by Olivier. The great difference existing in the structure of the antennæ between the males and the females induced Latreille in some of his earlier works to form a new genus with the latter, under the name of *Hammonia*; Leach also founded a genus for the reception of the females, which he called *Tibesia*.

In 1812 M. Guérin-Ménéville observed, at Toulon, an instance of copulation between two insects, one belonging to the genus *Cebrio* and the other to *Hammonia*. The same discovery was also made by M. de Cérisy at about the same time. These facts, showing the insects to belong to the same species, were communicated to Latreille, to whom M. de Cérisy promised to make every endeavour to ascertain their metamorphoses, and thus render their natural history complete. In this he succeeded last year; but before giving his own account of his discovery, it may be as well to describe in a few words the known peculiarities of the habits of the perfect insect.

The *Cebriones* have hitherto only been met with in the perfect state. They fly in great numbers during the heavy autumnal rains, seeking the females, which however they can never see, as these never quit the earth; the males become sensible of the presence of the female and scratch the earth, so as to lay bare the extremity of her abdomen, when impregnation takes place. It is by going to places where several males are seen to alight, that the female, which attracts them in this manner, is found. Since 1812 these peculiarities have been the subject of observation both with M. Guérin-Ménéville and M. de Cérisy, who have published notices connected with them in the 'Annales de la Soc. Ent. de France' and in the 'Revue de Zoologie'; but the larva has only just been discovered by M. de Cérisy.

He had long suspected that a yellow larva, of a cylindrical form and very hard, which he found in the earth at all seasons in places frequented every year by the *Cebriones*, might be the first state of these insects, but all his attempts to rear them proved abortive.

"This year," he says, "my perseverance obtained full success; I was fortunate enough to find a larva of larger size than usual, which had already begun to form a cavity which appeared to be intended for its metamorphosis. I took the entire mass of earth, which was pressed into a box made on purpose; on the 22nd of

June 1852 the larva ceased to move, and changed into a pupa on the 4th of July. On the 3rd of August this pupa gave birth to a very large female of *Cebrio gigas*.

"I wished to know how these larvæ could live at a depth of 50-60 centimetres in earth so dry, that during the summer a few plants could scarcely vegetate upon it. I endeavoured to ascertain how these insects could travel through a soil, which during long droughts becomes of an extraordinary degree of hardness. Several circumstances assisted to explain the whole to me. One day, whilst holding in my hand the earth which contained one of these larvæ, I felt the efforts which it made to open a way for itself, and found that it diffused a liquid for the purpose of softening the hard and compact earth, and that the first segment of its thorax possessed the faculty of enlarging by its dilatation in this moistened earth, the passages which the larva is obliged to pass through in search of its nourishment, which consists of roots.

"On the 8th of November last, I found, in a small space, three larvæ of different ages, from which we may conclude that they remain several years in the earth."—*Comptes Rendus*, Jan. 31, 1853, p. 225.

*On the Reproduction of the Toad and Frog without the intermediate stage of Tadpole.* By EDWARD JOSEPH LOWE, Esq., F.G.S., F.R.A.S.

The following brief remarks on the Toad (*Bufo vulgaris*) and the Frog (*Rana temporaria*) may perhaps be received with some degree of interest, as they are, I believe, contrary to the generally received notion of the procreation of these reptiles. Ray, and most naturalists, at least, consider toads and frogs as oviparous animals, yet it is apparent that they are viviparous as well, or if they do not bring forth their young alive, have the power of reproduction in a different manner to the ova and subsequent tadpole.

Mr. J. Higginbottom of Nottingham, who has paid great attention to this subject, has clearly proved the development of the tadpole to the perfect toad in situations wholly deprived of light, as I have through his kindness several times witnessed. My present remarks are intended to show that *occasionally* frogs and toads are reproduced in localities where it would be impossible for the intermediate stage of tadpole to have any existence.

First. *Toads deposit spawn in cellars and young toads are afterwards observed.*

Last summer several masses of spawn were procured from my cellar, having been found deposited amongst decaying potatoes, &c., and subsequently young toads were noticed. The cellar is free from water, and at a considerable distance from any brook.

Secondly. *Young toads are observed about hot-beds.*

In the kitchen-garden at Highfield House (which is entirely walled round) young toads have been noticed about the cucumber- and melon-beds. The gardeners have been in the habit of bringing